

REMARKS

Status of the Claims

- Claims 1, 3, 5-9, 19, 21, 23-30 are pending in the Application after entry of this amendment.
- Claims 10-18 and 31-33 are withdrawn from consideration
- Claims 1-9 and 19-30 are rejected by the Examiner.
- Claims 1, 19, 25, and 28 are amended by Applicant.
- Claims 2, 4, 20 and 22 are cancelled.

Claim Rejections Pursuant to 35 U.S.C. §101

Claims 1-9 and 19-30 stand rejected under 35 USC §101 as being directed to non-statutory subject matter for failing to produce a concrete, useful and tangible result. Applicant amends Claims 1, 19, 25, and 28 to include the tangible result that data is returned from a database in response to a query.

Applicant amends the specification at paragraph 0020 to cancel text that refers to computer readable media as inclusive of communication media. Applicant amends Claim 19 to specify machine-readable storage media.

Applicant respectfully requests withdrawal of the 35 USC §101 rejections as a result of the above described amendments. The Examiner is invited to contact the undersigned if additional, related questions arise.

Claim Rejections Pursuant to 35 U.S.C. §112

Claim 28-30 are rejected for failing to distinctly claim that which the Applicant regards as his invention. Specifically the phrase “results of the query are expressed as at least one of the group of ...”. Applicant amends independent Claim 28 to cancel the phrase and replaced with “results of the query are returned from the database as a response to the query” to simplify the claim and to also provide a tangible result. Applicant respectfully requests withdrawal of the 35 USC §112 rejection of claims 28-30.

Claim Rejections Pursuant to 35 U.S.C. §102

Claims 1-3, 5-9, and 19-30 stand rejected pursuant to 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,584,459 to Chang et al. (Chang). The Applicants respectfully traverse the rejection.

Chang teaches:

In accordance with the present invention, an XML extender for a computer-implemented relational database system is disclosed for storing, querying, and retrieving structured documents. Generally, relational extenders define and implement complex data types and extend the tables within the relational database with the new data types. The XML extender provides a new Abstract Data Type (ADT) DB2XML, which can be specified as a column data type, and includes several User Defined Functions (UDFs) for storing, searching, and retrieving XML documents internally, as DB2.RTM. Character Based Large Objects (CLOB), or externally, in flat files or Uniform Resource Locators (URLs), for example.
(col. 3 lines 48-60).

Applicant amends Claim 1 to more clearly recite that which Applicant regards as his invention. Amended Claim 1 recites:

A computer-executed method of retrieving XML data from a database, the method comprising:

creating a primary table structure to hold XML data as a binary large object in an XML column;

creating a primary XML index relating to the primary table structure, where the primary XML index includes a node table;

populating the primary table and the primary XML index, wherein the primary XML index is populated by shredding XML values from the binary large object and storing the values into the primary XML index, and wherein the XML index preserves document order and structure;

querying on the primary table, which then uses the XML index by directing the query to a location identified in the XML index node table to satisfy the query, whereby XML data is retrieved from the database; and

retaining the primary table and primary XML index so that subsequent queries execute faster than an initial query.

Applicant finds support for the amendment in the originally filed specification at paragraphs 0013, 0014, 0016, and 0029. Applicant respectfully submits that Chang does not disclose the method as recited in Claim 1. Chang does not disclose a primary XML index which is populated from a primary table by performing both (1) shredding the XML values from a binary large object and (2) preserving both document order and structure in the primary XML index.

In addition, Chang does not disclose the method of retaining the primary table and the XML index, (the XML index having the preserved document order and structure), so that subsequent queries execute faster than an initial query.

In another aspect, Claim 1 recites that a primary table structure is created to hold XML data as a binary large object in an XML column. (See Claim 1). Applicant notes that Chang teaches at col. 20 lines 54-64:

E. Insertion of Data into the XML Column

The DB2XML ADT 142 contains several data fields, *so an XML document cannot be entered directly into an XML column*. Instead, the XML documents must be loaded using the functions provided by the XML extender and detailed above. The most recommended function to be used for insertion of data into the XML column is `xmlFromFile`, which takes input parameters of file name and storage type. *The storage type specifies whether you want to store XML document as external file or internal CLOB.*
(Col. 20 lines 54-64)

Applicant submits that Chang teaches that an XML document can only be stored in an XML column as a CLOB. A CLOB, (Character Large Object) is a database field that holds a large amount of text (character data). It is also known as a "memo field" in some database programs. A BLOB (Binary Large Object) is a database field that holds any digitized information, including text, images, audio or video. Also known simply as a "large object" or LOB, a BLOB may have a huge storage capacity. Thus there are differences between a CLOB and a BLOB. (See <http://www.techweb.com> web technical encyclopedia for a reference definition of CLOB and BLOB). Whereas Claim 1 recites that a primary table structure holds XML data as a BLOB and that the BLOB is shredded to populate the XML index, Chang teaches that XML data cannot be stored in a XML column. The use of a BLOB

storage format in a primary table is thus another distinguishing feature of the present invention over that of Chang.

Applicant amends independent Claims 19, 25, and 28 to include the aspects included in amended Claim 1 and discussed above which are not taught in Chang. Accordingly, Applicant respectfully requests withdrawal of the 35 USC 102(e) rejection of Claims 1-3, 5-9, and 19-30 because all elements of independent Claims 1, 19, 25 and 28 are not taught in Chang and thus patentable define over the cited art.

Claim Rejections Pursuant to 35 U.S.C. §103 (a)

Claims 4 and 22 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,584,459 to Chang et al. (Chang) in view of US. Patent No. 6,915,303 to Kauffman. Applicants respectfully traverse the rejection.

Applicant has included the subject matter of claims 4 and 22 into the respective independent Claims 1 and 19.

As a reference, Kauffman teaches a code generator system for digital libraries:

A technique for creating a custom database is provided. A system description of a structure of a database is received. A structure for the custom database is generated based on the system description. In addition, a search engine based on the system description is generated to store and locate data in the custom database. (See Abstract.).

The method taught by Kauffman is:

A computer-implemented method of creating a custom database in a data store connected to a computer, the method comprising: receiving a system description of a structure of (a) said custom database, and (b) an object, wherein said system description defines a mapping of one or more abstract objects to a physical representation in said structure of said custom database; generating said structure for said custom database based on said system description; and generating program code based on said system description, wherein said program code includes a module that, when executed, stores said object in said custom database. (Kauffman, Claim 1).

Applicant submits that Kauffman, like Chang, does not teach a method of retrieving XML data from a database which comprises creating a primary table structure to hold XML data as a binary large object in an XML column, creating a primary XML index relating to the primary table structure, where the primary XML index includes a node table, populating the primary table and the primary XML index, wherein the primary XML index is populated by shredding XML values from the binary large object and storing the values into the primary XML index, and wherein the XML index preserves document order and structure, querying on the primary table, which then uses the XML index by directing the query to a location identified in the XML index node table to satisfy the query, whereby XML data is retrieved from the database; and retaining the primary table and primary XML index so that subsequent queries execute faster than an initial query.

Notably, Kauffman fails to teach or suggest shredding XML data from a BLOB in a primary table to populate a primary XML index which preserves document order and structure, wherein one can query against the primary table which then uses the XML index to satisfy the query and where the primary table and XML index are retained for future queries as recited in amended Claims 1, 19, 25 and 28.

Since both Chang and Kauffman fail to teach all of the elements of the amended independent claims as discussed above, then the combination of Chang and Kauffman cannot render obvious the pending claims according to 35 USC §103(a) and MPEP 2143.03.

Applicant respectfully requests withdrawal of all rejections of the pending claims and requests reconsideration as the pending claims patentably define over the cited art.

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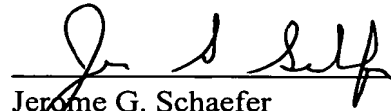
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Conclusion

Applicants respectfully submit that all pending claims patentably define over the cited art. Applicants respectfully request reconsideration and withdrawal of the rejections.

Respectfully submitted,

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